

BBDOS 4.0 GENERAL INFORMATION

(FOR "STANDARD" AERCO DISK BOARD THAT USES 12 to 14K)

Load your BBDOS with "RAND USR 13303" the same as any other DD disk. You must have ram enabled at 2000-2FFF hex (8-12K) for all versions. If you have a 6K version then 3800-3FFF hex (14-16K) must also be enabled. In both cases 3000-37FF hex (12-14K) must NOT be enabled as it is reserved for the Aerco disk board. Therefore Memotech 64K and other users who can only enable ram in 4K blocks must use the 4K version. The 6K version allows Z-TOOLS or other machine code to reside in 8-10K; in other respects both versions provide the same functions and are compatible with files written by the other. Memotech CIF users should enable 8-12K even though the CIF uses part of that area, as BBDOS duplicates the CIF rom and maps the remaining areas for its' own use. The first entry in your disk directory is BBDOS itself, showing the version number, BBDOS size, and two characters denoting printer interface type and disk sides.

★ MEMOTECH 64K - SWITCH 3 ON (UP), OTHERS OFF - ENABLES 8 to 12K - RUNS 4K BBDOS.

If BBDOS can't load itself correctly it will give "DISK ERROR". This may be due to your ram not properly operating as above. If you hold "BREAK" after RAND USR 13303 and the disk loads without the error, then the problem occurs when BBDOS distributes into 8-16K.

User information about BBDOS is contained in the "HELP1" and "HELP2" files shown in the directory. After BBDOS initializes itself it will show you the directory screen with the ?> prompt on line 24. Type in HELP1 and press enter; you're on your way!

The files named LO HZ2 and HI HZ2 are BBDOS modified versions of HOT-Z II 64K. "HI" only works if you have the M1 NOT modification that allows fetch above 32K. Both have disk load and save (information in HELP1). Ray Kingsley will provide HOT-Z II documentation for \$10 if you have not previously purchased this program. No serious user should be without it. Write him at 1710 Oliver Ave., San Diego, California, 92109.

The MEMOTEXT and MEMOHELP files are adaptations of Fred Nachbaur's high ram Memotext V3. This also will not run unless you have the M1 NOT modification. The "DSP" screen will show you the disk commands. The MEMOTEXT ending in "***" allows you to configure and then save your own version. The MEMOTEXT ending in two letters is a pre-configured version. The MEMOHELP file is automatically loaded by running either Memotext. If you have not purchased this superior word processor, Fred will provide the documentation for \$15 (includes Memotech license fee). Write him at SILICON MOUNTAIN COMPUTERS, C-12, Mtn. Stn. Group Box, Nelson, BC V1L 5P1, CANADA or call 604-354-3858.

The PRO/FILE is a 40K version of Tom Wood's popular datafile program. This one runs without the M1 NOT modification. The last two letters indicate your printer. "IF" indicates printing via the BBDOS support; "MT" indicates it is for Memotech CIF or T2040 (the MT version runs either printer without any changes required). The original documentation is out of print but Tom has PRO/FILE UPDATES vols. 1 and 2 for \$9.95 each. Write Thomas B. Woods, P.O. Box 64, Jefferson, New Hampshire 03583 or call 603-586-7734.

The ":F" command (see HELP1) can give trouble with older Aerco roms, which have a bug formatting disks while at 64K, and cause the disk to hang up. PRINT PEEK 13419 shows 240 for the old rom and 244 for the corrected one. Best would be to get a corrected rom from Aerco, but if you experience :F problems use this alternate procedure to create new BBDOS disks: (1) Format the new disk as double density with any method that worked for you before. (2) load your BBDOS disk and enter the :F command. (3) When it asks for which drive, press "STOP" (Shift-A). (4) When you see the listing, put the machine into "FAST" mode. (5) Insert your new disk into THE SAME DRIVE that has the BBDOS disk. (6) RAND USR 10889 which insures a clear directory. (7) RAND USR 22947 which writes BBDOS and the directory onto page 1 of the new disk. (8) Use the :N command to number the new disk as desired. Your new BBDOS disk is now ready for use.

Investigate the "HELP" programs and line 3500 up in the PRO/FILE to see examples of using BASIC with BBDOS as explained in HELP2. The author is very interested in your experiences, comments, or proposed enhancements. Please write or call Bill Bell, 596 Cherrington Road, Westerville, Ohio 43081 (phone 614-882-3883).

AERCO DISK ZX-81/TS-1000 USERS!

Are you tired of RAND USRing? Do you wish your system had a "like the big boys" DOS that automatically managed all the disk operations by file name, automatically intermixed 16K and 64K pages on the same disk, and was completely independent of and transparent to the BASIC area? One that automatically handled all the functions you now have to jury-rig?

YOU GOT IT! - BBDOS!

Memory in the 8K to 16K region is required to run BBDOS. It resides on page 1 and auto-installs itself upon loading. Three primary versions are available. The "4K" version requires 8K-12K enabled. The "6K" version requires 8K-12K plus 14-16K enabled, and loads Z-Tools (or your own utility) in the 8K-10K region. Both support the standard Aerco disk board located at 12K-14K. The "SP" version supports the special Aerco disk board located at 8K-10K, and requires memory enabled at 12K-16K. This version allows the Aerco RB-ZX smart CIF and auto disk boot eeprom to occupy 10-12K, creating a super-system with BBDOS. Sub-versions are customized for your specific disk/printer/ram combination. All versions provide identical functions and can read files created by another version.

Compatible with all printer interfaces
Unaffected by "New" or reset switch use
Easy conversion from SADOS disk & tape
NEW's system to memory limit when loaded
Option for autoloading any program after DOS
Load programs by typing name in directory
Automatically calculates page size needs
Automatically displays disk directory

Compatible with Oliger video mod & Bent rom
Supports 1 or 2 drives, single/double sided
Up to 389K storage on double sided drives
Disk save/load for Hot-Z, Memotext, Pro/File
Print, List, & Copy support for printers
Info messages & screen prompt lead-through
Automatically assigns & releases disk space
Automatically preserves Aerco parameters

Twenty-two directory screen commands for:

Return system to BASIC	Format disk w/dos & directory	Reload entire system
Print directory hard copy	Erase any entry, free up space	Number disk, 000 to 999
Switch to other drive	Configure for autoloading	Copy full disk (2 drives)
Copy 1 file to other drive	Copy file using only 1 drive	List program on printer
Direct entry into Z-Tools	Direct entry into Hot-Z	Direct entry into Memotext
Six printer control codes	And save program to disk with choice of four start options	

Forty-five commands callable from BASIC with RAND USR 12000, using variables Z and Z\$ as information exchange handled automatically by BBDOS. These include disk save/load/erase by file name (program or variables), 30 modes of directory searching, & printer support.

To generate the proper versions I need a FULL and COMPLETE description of your hardware. Versions for 35/40 track, SS, DS, T2040, Memotech, Aerco, Oliger, Byte-Back available. Also Byte-Back serial MD1-MD2; for them I need baud rate, bits, & parity. The six built-in commands for printer control send ^{EPSON} ~~printer~~ codes; if you want others tell me what they are. This does not affect control from a program so it's not mandatory. As I'm a user-hobbyist myself I will attempt to answer your questions, make special versions, or assist you in modifying it. In fact I would encourage this kind of communication.

Any version BBDOS & programs disk - \$29.95	Future updates or improvements - \$5.00
Custom conversions - probably \$5.00 (ask)	Advise & consent - always free if SASE!
Annotated source code printout - \$5.00 (not yet, let me know if you want to be on list)	

Complete instructions for BBDOS use are included. BBDOS versions of Ray Kingsley's Hot-ZII 64K (low & high ram), Z-Tools, Fred Nachbaur's high ram Memotext, and Tom Woods' ZX Pro/File are supplied without necessary documentation. Your previous purchase of these programs contains the information you need. Alternatively, those authors will provide documentation only for a nominal price. Address and cost information will be included.

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BBDOS: TS1000 Review

BBDOS: A Disk Operating System
for the AERCO FD-ZX Interface

Distributed by:
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(614) 882-3883
PRICE: \$29.95

ZX81/TS1000 owners who have been using the Aerco FD-ZX Disk Drive Interface owe Jerry Chamkis and his Texas staff a debt of gratitude for providing them with a reliable, high speed, mass storage system. But even as nice as the FD-ZX unit is, its disc operating system (DOS) leaves much to be desired. The machine code part of the DOS stored in an on-board EPROM performs its job well enough, but the BASIC program that drives it is, to be polite, caveman-ish in its approach.

Enter Bill Bell of the Columbus, Ohio area.

Mr. Bell picked up his first AERCO FD-ZX in a computer "junk" store somewhere on the Eastern Seaboard while on a trip there a few years back. He liked the hardware and the firmware, but was disappointed with the BASIC DOS driver. Which led to the question, "What if...".

Mr. Bell is now offering for sale his disk operating system for the AERCO FD-ZX. The system is BBDOS (appropriately for Bill Bell Disk Operating System). This DOS will take your ZX81/TS1000 and FD-ZX Interface and propel them from the pre-Neanderthal era into the 21st century.

BBDOS is fully automatic and BASIC transparent. The only requirement for its use is that there must be memory available and enabled in the 2000-2FFF (hex, 8K-12K decimal) region of the computer memory map. Once the DOS is installed, it is completely immune

to BASIC "NEW" and even system reset (pin 21B of the rear edge connector brought low). To install and start the DOS requires only one RAND USER call. After that, all file handling is done by file name or a function code from the DOS directory. This arrangement completely frees the user from the tedious and mundane chore of disk management.

Other features include automatic handling of 16K/64K page intermixing. Easy conversion of programs and data previously stored with SADOS (the AERCO DOS package). Single file and full disk transfers or moves (copy). BBDOS even allows you to copy files from disk to disk with only a single disk drive connected to the FD-ZX. BBDOS also permits the auto-booting of a selected program from disk upon DOS startup. Provisions are made in the DOS to allow 45 functions to be easily initiated by your own BASIC programs (with just a little effort, your MC programs can even do it!-ed.). By special arrangement with Fred Nachbaur, Memotech, and Ray Kingsley, Memotext, Z-Tools, and Hot Z II can be provided on disk already modified to function with BBDOS.

BBDOS supports 1 or 2 drives, single or double sided. It also supports all printer interfaces currently on the market for the ZX81/TS1000.

While the documentation is not exhaustive, it is more than adequate to get you up and running and completely acquainted with all the features of BBDOS. If any problems or questions do arise, this author has first hand knowledge that Mr. Bell is more than willing to take the time to talk or correspond with you until you both are assured your questions have been answered fully.

I would highly recommend the purchase of BBDOS for use with your AERCO FD-ZX interface. It takes a good product and makes it even better.

Reviewed by Jeff Moore

Ø REM (ALL BBDOS CODE IN ØREM, LOADED 4Ø7D TO 64Ø9)
 0001 RAND USR 16514 (BBDOS STARTUP LINE)
 0002 STOP
 0003 RAND USR 16600 (USED IN CREATION, NOT NORMALLY USED NOW)
 0004 REM (THIS REM PROVIDES PADDING OUT TO E-LINE 68ØB
 WHICH PROVIDES THE FASTEST LOAD
 DUE TO AN AERCO ROM QUIRK)
 COPYRIGHT 1986 BILL BELL

BBDOS 4.0 AERCO/DS/40/4K

4082>210041 LD HL,4100 } MOVE BBDOS FROM ØREM
 4085 110020 LD DE,2000 } TO ITS' OPERATING AREA 8-12K.
 4088 010010 LD BC,1000 } (NOT ALL CODE MOVED TO RAM AT THIS TIME - SEE "OVERLAY CALLER")
 408B EDB0 LDIR
 408D 00 NOP
 408E 00 NOP
 408F 00 NOP
 4090 00 NOP
 4091 00 NOP
 4092 00 NOP
 4093 00 NOP
 4094 00 NOP
 4095 00 NOP
 4096 00 NOP
 4097 00 NOP

4098 2620 LD H,20
 409A 110000 LD DE,0000 } FORM A SUMCHECK ON THE 8-12K
 409D 00 NOP } RELOCATED BBDOS. THE NO-OPS
 409E 00 NOP } ARE PRESENT SIMPLY BECAUSE OTHER
 409F 00 NOP } VERSIONS RELOCATE AND SUMCHECK
 40A0 00 NOP } DIFFERENT NON-CONTIGUOUS RAM
 40A1 0600 LD B,00 } SEGMENTS AND CODE FOR THAT FITS
 40A3 4E LD C,(HL) } IN WHERE THIS "4K" VERSION HAS NONE.
 40A4 EB EX DE,HL
 40A5 09 ADD HL,BC
 40A6 EB EX DE,HL
 40A7 23 INC HL
 40A8 7C LD A,H
 40A9 FE30 CP 30
 40AB 20F4 JR NZ 40A1 } SUMCHECK IS FORMED IN DE REGISTER.
 40AD 00 NOP
 40AE 00 NOP
 40AF 00 NOP
 40B0 00 NOP
 40B1 00 NOP
 40B2 00 NOP
 40B3 00 NOP
 40B4 00 NOP
 40B5 00 NOP
 40B6 00 NOP
 40B7 A7 AND A

40B8 21B713 LD HL,13B7 - THIS IS THE CORRECT SUMCHECK FOR THIS VERSION
 40BB ED52 SBC HL,DE
 40BD C25131 JP NZ 3151 - JUMP TO AERCO "DISK ERROR" IF SUMCHECK FAILS
 40C0 2A7B40 LD HL,(407B) } PRESERVE AERCO DISK PARAMETERS (407B,407C) IN BBDOS(2EA1,2EA2)
 40C3 22A12E LD (2EA1),HL } SO THAT USER OPERATIONS IN BASIC AREA CANNOT DESTROY THEM.
 40C6 21C059 LD HL,59C0 - BBDOS' STORAGE OF A PROGRAM NAME TO AUTOLOAD ON BOOT.
 40C9 11B02E LD DE,2EB0 - BBDOS' KEYBOARD ENTRY INPUT BUFFER WITH VLT.
 40CC 011000 LD BC,0010 } MOVE AUTOLOAD NAME, IF ANY. WILL BE ALL ZEROS IF NO AUTOLOAD.
 40CF EDB0 LDIR
 40D1 C3C026 JP 26C0 - JUMP TO START OF BBDOS' "COMMON OVERLAY AREA" (26CØ-2TEF).
 40D4 00 NOP
 40D5 00 NOP
 40D6 00 NOP
 40D7 00 NOP

AT THIS POINT, HOWEVER, THE OVERLAY AREA CONTAINS THE "64K NEW" ROUTINE WHICH IS LOADED AND USED ONLY WHEN BBDOS IS BOOTED.

"64K NEW" ROUTINE

THE BBDOS OVERLAY AREA (26C0-27EF) CONTAINS THIS ROUTINE WHEN BBDOS IS FIRST BOOTED (OR REBOOTED). YOU WILL FIND IT IS NEARLY IDENTICAL TO THE 8K ROM ROUTINES PERFORMED ON POWER UP OR A "NEW" COMMAND.

THE DIFFERENCES ARE THAT IT SETS RAMTOP TO 64K (OR THE MAXIMUM WORKING RAM IF LESS), AND IT CONTINUES WITH BBDOS OPERATIONS UPON COMPLETION RATHER THAN EXITING TO THE "K" CURSOR DISPLAY.

THE NET RESULT IS THAT ALL VESTIGES OF BBDOS ARE CLEARED FROM THE BASIC AREA AND THE MACHINE IS NOW PRESENTED TO THE USER AS IF IT WERE JUST POWERED ON, EXCEPT FOR THE 64K RAMTOP SETTING AND BBDOS HIDING IN 8-12K.

26C0>00	NOP
26C1 00	NOP
26C2 3EFE	LD A,FE
26C4 32FFFF	LD (FFFF),A
26C7 01FEFF	LD BC,FFFE
26CA 60	LD H,B
26CB 69	LD L,C
26CC 3E3F	LD A,3F
26CE 3602	LD (HL),02
26D0 2B	DEC HL
26D1 BC	CP H
26D2 20FA	JR NZ 26CE
26D4 A7	AND A
26D5 ED42	SBC HL,BC
26D7 09	ADD HL,BC
26D8 23	INC HL
26D9 3006	JR NC 26E1
26DB 35	DEC (HL)
26DC 2803	JR Z 26E1
26DE 35	DEC (HL)
26DF 28F3	JR Z 26D4
26E1 220440	LD (4004),HL
278F>CD6607	CALL 0766
2792 FDCB007E	BIT 7,(IY+00)
2796 2024	JR NZ 27BC
2798 3A2240	LD A,(4022)
279B FE18	CP 18
279D 301D	JR NC 27BC
279F 3C	INC A
27A0 322240	LD (4022),A
27A3 47	LD B,A
27A4 0E01	LD C,01
27A6 CD1809	CALL 0918
27A9 54	LD D,H
27AA 5D	LD E,L
27AB 7E	LD A,(HL)
27AC 2B	DEC HL
27AD BE	CP (HL)
27AE 20FC	JR NZ 27AC
27B0 23	INC HL
27B1 EB	EX DE,HL
27B2 3A0540	LD A,(4005)
27B5 FE4D	CP 4D
27B7 DC5D0A	CALL C 0A5D
27BA 18C9	JR 2785
27BC 210000	LD HL,0000
27BF 221840	LD (4018),HL
27C2 CD9A24	CALL 249A
27C5 CD652B	CALL 2B65
27C8 2014	JR NZ 27DE
27CA 3E0F	LD A,0F
27CC 32B02E	LD (2EB0),A
27CF 2AA52E	LD HL,(2EA5)
27D2 110900	LD DE,0009
27D5 19	ADD HL,DE
27D6 11B12E	LD DE,2EB1
27D9 010F00	LD BC,000F
27DC EDB0	LDIR
27DE 010401	LD BC,0104
27E1 11377C	LD DE,7C37
27E4 C32524	JP 2425
27E7 00	NOP
27E8 00	NOP

- READ DISK DIRECTORY (TRACK 3, SEC 1) INTO 2000-21FF
- SEARCH DIRECTORY FOR PROGRAM NAME MATCHING AUTOLOAD NAME
- JUMP IF NO MATCH FOUND

IF MATCHING PROGRAM NAME FOUND, MOVE THE FULL 15 CHARACTER NAME ENTRY FROM THE DIRECTORY TO THE KEYBOARD ENTRY INPUT BUFFER (2EB1-2EBF) AND SET THE VLI (VARIABLE LENGTH INDICATOR) TO "15"(2EB0)

- PASS TRACK 1, SECTOR 4 TO OVERLAY CALLER (AUTOLOAD & HOT-Z OVERLAY)
- PASS SUMCHECK FOR OVERLAY TO OVERLAY CALLER
- JUMP TO "COMMON OVERLAY CALLER"

"COMMON OVERLAY CALLER"

(REQUESTING ROUTINE PASSES TRACK & SECTOR IN BC REG AND SUMCHECK IN DE REG)

2425>D5	PUSH DE	- SAVE OVERLAY SUMCHECK	} BOTH FROM REQUESTING ROUTINE
2426 C5	PUSH BC	- SAVE OVERLAY TRACK & SECTOR	
2427 2AA12E	LD HL, (2EA1)	} RESTORE DISK PARAMETERS FOR AERCO	
242A 227B40	LD (407B), HL		
242D CD0032	CALL 3200	- MOTOR ON & RESTORE	
2430 C1	POP BC	- TRACK & SECTOR NUMBERS OF OVERLAY	
2431 210020	LD HL, 2000	- DISK BUFFER START (SAME AREA USED FOR DIRECTORY)	
2434 E5	PUSH HL		
2435 CD0033	CALL 3300	- READ ONE SECTOR (512 BYTES, AERCO DD FORMAT)	
2438 E1	POP HL		
2439 11C026	LD DE, 26C0	} MOVE OVERLAY CODE FROM BUFFER AREA TO OVERLAY AREA (26C0-27EF). MAXIMUM OVERLAY CODE IS 304 BYTES.	
243C 013001	LD BC, 0130		
243F C5	PUSH BC		
2440 D5	PUSH DE		
2441 EDB0	LDIR		
2443 CD9A24	CALL 249A	- RESTORES DISK DIRECTORY INTO 2000-21FF	
2446 E1	POP HL		
2447 110000	LD DE, 0000	} FORM A SUMCHECK ON THE OVERLAY AREA IN DE REGISTER AND COMPARE TO PREVIOUSLY SAVED SUMCHECK.	
244A 0600	LD B, 00		
244C 4E	LD C, (HL)		
244D EB	EX DE, HL		
244E 09	ADD HL, BC		
244F EB	EX DE, HL		
2450 23	INC HL		
2451 C1	POP BC		
2452 0B	DEC BC		
2453 AF	XOR A		
2454 90	SUB B		
2455 91	SUB C		
2456 C5	PUSH BC		
2457 20F1	JR NZ 244A		
2459 C1	POP BC		
245A E1	POP HL		
245B ED52	SBC HL, DE		
245D C45131	CALL NZ 3151	- TO AERCO "DISK ERROR" IF SUMCHECK FAILS.	
2460 C3C026	JP 26C0	- JUMP TO START OF "COMMON OVERLAY AREA" TO EXECUTE THE REQUESTED OVERLAY ROUTINE.	
2463 33	INC SP	} NOT CODE, IS MESSAGE DATA FOR ANOTHER ROUTINE.	
2464 2632	LD H, 32		
2466 2A0039	LD HL, (3900)		
2469 34	INC (HL)		
246A 00	NOP		
246B 32343B	LD (3B34), A		
246E 2A0F3A	LD HL, (3A0F)		
2471 48	LD C, B		

OF THE TOTAL 4K UTILIZED BY BBDOS, $\frac{1}{2}$ K IS DEDICATED TO STORAGE OF THE DISK DIRECTORY (2000-21FF) AND $\frac{1}{2}$ K IS DEDICATED TO "UPD" (OR A REPLICATION OF THE MEMOTECH CIF) IN ORDER TO PROVIDE PRINTER SUPPORT (2800-29FF). THIS LEAVES ONLY 3K FOR BBDOS CODE, MESSAGE DATA, POINTER TABLES, AND WORKING STORAGE. IN ORDER TO PROVIDE MORE FUNCTIONS THAN SPACE ALLOWS, OVERLAY CALLING IS EMPLOYED. LESS FREQUENTLY USED ROUTINES ARE EMBEDDED IN THE BBDOS 0REM BETWEEN 5A09 AND 6409, CAREFULLY LOCATED SO THAT PHYSICAL DISK LOCATIONS ARE KNOWN TRACKS & SECTORS. WHEN REQUIRED, THEY ARE READ INTO AND EXECUTED FROM THE "COMMON OVERLAY AREA". ONLY THE "COMMON OVERLAY CALLER" ROUTINE NEEDS TO STAY MEMORY RESIDENT.

"AUTOLOAD AND HOT-Z II INTERFACE" OVERLAY, AS RESIDENT (LOADED FROM TRACK 1, SECTOR 4 AND NORMALLY THE RESIDENT OVERLAY)

26C0>C3B227	JP 27B2	— "AUTOLOAD" ENTRY POINT	
26C3 CB69	BIT 5,C	ROUTINES FOR DISK LOAD & SAVE BY "HOT-Z II" COMMANDS SHIFT-A AND SHIFT-B WHEN IN WRITE MODE.	
26C5 2803	JR Z 26CA		
26C7 E1	POP HL		
26C8 F1	POP AF		
26C9 C9	RET		
26CA 11B02E	LD DE,2EB0		
26CD EB	EX DE,HL		
26CE CB61	BIT 4,C		
26D0 2802	JR Z 26D4		
26D2 0E0F	LD C,0F		
26D4 71	LD (HL),C		
26D5 23	INC HL		
26D6 EB	EX DE,HL		
26D7 EDB0	LDIR		
26D9 EB	EX DE,HL		No ENTRY TO LOAD JUMP TO MAIN BBDOS ENTRY POINT → THE "NORMAL" BOOT EXIT CLEAR SCREEN
26DA 2B	DEC HL		
26DB CBBE	RES 7, (HL)		
26DD C9	RET		
26DE CD7B2A	CALL 2A7B		
26E1 F1	POP AF		
26E2 F5	PUSH AF		
27A8>20CA	JR NZ 2774		
27AA 1801	JR 27AD		
27AC D1	POP DE		
27AD CD9A24	CALL 249A		
27B0 18A7	JR 2759		
27B2 3AB02E	LD A, (2EB0)	— KEYBOARD ENTRY INPUT BUFFER "VLI" (VARIABLE LENGTH INDICATOR)	
27B5 FE00	CP 00	No ENTRY TO LOAD	
27B7 CAFB2A	JP Z 2AFB		
27BA CD2A0A	CALL 0A2A	JUMP TO MAIN BBDOS ENTRY POINT → THE "NORMAL" BOOT EXIT	
27BD 01020B	LD BC,0B02	CLEAR SCREEN	
27C0 CDF508	CALL 08F5	SET SCREEN PRINT POSITION	
27C3 11E227	LD DE,27E2	DISPLAY "AUTOLOADING"	
27C6 010C00	LD BC,000C		
27C9 CD6B0B	CALL 0B6B	DISPLAY NAME OF PROGRAM BEING AUTOLOADED	
27CC 11B12E	LD DE,2EB1		
27CF 010F00	LD BC,000F	CALL SLOW MODE FOR DISPLAY	
27D2 CD6B0B	CALL 0B6B		
27D5 CD2B0F	CALL 0F2B	DELAY TIME, APPROX. 2 SECONDS	
27D8 0604	LD B,04		
27DA CDC925	CALL 25C9	SEARCH DIRECTORY FOR PROGRAM NAME AND LOAD PROGRAM IF FOUND.	
27DD 10FB	DJNZ 27DA		
27DF C38A2B	JP 2B8A	(FOR BBDOS "BOOT & AUTOLOAD" THE EXISTANCE OF A VALID PROGRAM NAME HAS ALREADY BEEN VERIFIED. HOWEVER, OPERATION OF BBDOS FROM BASIC TO REQUEST PROGRAM LOADING ALSO COMES HERE AND MAY HAVE PASSED. AN INVALID NAME)	

BBDOS 4.0 4K MEMORY MAP
ROUTINE ADDRESSES AND DATA LOCATIONS

HEX ADDRESS	USAGE
2000-21FF	DISK DIRECTORY STORAGE (ALSO USED AS DISK I/O BUFFER)
2200-22DA	DATA FOR BBDOS MESSAGES AND PROMPTS
22DB-2373	BASIC HOOK: SEARCH DIRECTORY USING VARIABLE "Z"
2374-237A	BASIC HOOK: Z=0; USE BBDOS KEYBOARD INPUT ROUTINE
237B-2381	BASIC HOOK: Z=1; USE BBDOS DIRECTORY SCREEN DISPLAY
2382-2388	BASIC HOOK: Z=3,5,35; USE ROUTINE AT 2F01, DISK SAVE
2389-238E	BASIC HOOK: Z=4; USE ROUTINE AT 26B6, "NEW" AND LOAD
238F-2395	BASIC HOOK: Z=6; USE ROUTINE AT 2F7D, LOAD VARIABLES
2396-239C	BASIC HOOK: Z=7; USE ROUTINE AT 262F, ERASE DIR ENTRY
239D-23B0	BASIC HOOK: Z=8; LPRINT Z\$ WITH CR/LF APPENDED
23B1-23C1	BASIC HOOK: Z=9; LPRINT Z\$
23C2-23D2	BASIC HOOK: Z=10; LPRINT Z\$ TRANSLATED TO ASCII
23D3-23DC	BASIC HOOK: Z=11,13,or >15; USE ROUTINE AT 22DB
23DD-23ED	BASIC HOOK: Z=12; USE BBDOS 24 LINE SCREEN COPY
23EE-2424	ROUTINE: :M AND :S "MOVE" COMMANDS, INITIAL PART
2425-2462	ROUTINE: COMMON OVERLAY CALLER AND SUMCHECKER
2463-246F	DATA FOR MESSAGE DISPLAY OF :M AND :S COMMANDS
2470-2499	ROUTINE: DISK DIRECTORY WRITE
249A-24C6	ROUTINE: DISK DIRECTORY READ
24C7-2589	ROUTINE: DISK DIRECTORY SCREEN DISPLAY
258A-259C	ROUTINE: TEST FOR :Q "QUIT" COMMAND
259D-25C8	ROUTINE: "NOT AVAILABLE" SCREEN DISPLAY
25C9-25D2	ROUTINE: DELAY (1/2 SEC SLOW MODE, 70 MSEC FAST MODE)
25D3-25DC	ROUTINE: :H "JUMP TO HOT-ZII" COMMAND
25DD-2601	ROUTINE: FIND Z\$ IN BASIC, MOVE TO KEYBOARD INPUT BUFFER
2602-2620	ROUTINE: MOVE KEYBOARD INPUT BUFFER TO Z\$ IN BASIC
2621-2629	ROUTINE: :E "ERASE" COMMAND
262A-262B	DATA FOR DEFINING SIMPLE VARIABLE "Z"
262C-262E	DATA FOR DEFINING STRING VARIABLE "Z\$"
262F-263F	BASIC HOOK: ERASE DISK DIRECTORY ENTRY
2640-265F	TABLE: BASIC "Z" HOOK-POINTERS; 16 2-BYTE ENTRIES
2660-266C	ROUTINE: :R "REBOOT" COMMAND
266D-2670	ROUTINE: "STOP" COMMAND
2671-2677	ROUTINE: MOVE BASIC HOOK RESULT FROM 2EA3 TO BASIC "Z"
2678-267D	ROUTINE: :X "SWITCH DRIVE" COMMAND
267E-2686	ROUTINE: :F "FORMAT DISK" COMMAND, INITIAL PART
2687-268F	ROUTINE: :J "AUTOLOAD SETUP" COMMAND, INITIAL PART
2690-26B5	ROUTINE: HOT-ZII DISK LOAD AND SAVE COMMANDS, INITIAL PART
26B6-26BE	BASIC HOOK: LOAD OVERLAY 0107 TO "NEW" AND LOAD PROGRAM
26BF **	UNUSED
26C0-27EF	BBDOS OVERLAY AREA (NORMALLY LOADED WITH OVERLAY 0104)
27F0-27FD	DATA FOR BBDOS VERSION ID
27FE-27FF	UNUSED
2800-29FF	PRINTER SUPPORT, "UPD" CODE OR MEMOTECH CIF ROM CODE
2800-287F	IF UPD: ASCII CONVERSION TABLE
2880-28B3	IF UPD: AREA FOR PRINTER I/F DRIVERS AND INITIALIZERS
28B4-28B8	IF UPD: REVERSE LPRINT SETUP
28B9-28BD	IF UPD: INVERSE LPRINT SETUP

HEX ADDRESS

USAGE

28BE-28C6	IF UPD: ASCII LPRINT SETUP
28C7-28D1	IF UPD: OUTPUT CR,LF
28D2-28E1	IF UPD: REVERSE LPRINT OUTPUT
28E2-28F1	IF UPD: INVERSE LPRINT OUTPUT
28F2-2908	IF UPD: LCOPY 24 LINE SCREEN
2909-2913	IF UPD: LCOPY PARTIAL SCREEN
2914-29BE	IF UPD: LLIST ROUTINE
29BF-29FF	IF UPD: LPRINT ROUTINE
2A00-2A7A	ROUTINE: BBDOS KEYBOARD INPUT
2A57-2A7A	"DELETE" KEY PORTION OF KEYBOARD INPUT ROUTINE
2A7B-2A88	ROUTINE: CLEAR BBDOS KEYBOARD INPUT BUFFER
2A89-2AB0	ROUTINE: CLEAR DISK DIRECTORY (IN MEMORY)
2AB1-2AF7	ROUTINE: REQUEST DISK NUMBER AND PLACE IN DIRECTORY
2AF8 **	>>> BBDOS MAIN ENTRY POINT (DECIMAL ADDRESS 11000) <<<
2AF8-2B2E	ROUTINE: MAIN SCREEN DISPLAY/COMMAND DISPATCH OR LOAD PROG
2B2F-2B4B	ROUTINE: SEARCH DIRECTORY FOR MATCHING USE TYPE
2B4C-2B60	ROUTINE: COMPARE KEYBOARD INPUT BUFFER TO DIRECTORY ENTRY
2B61-2B86	ROUTINE: SEARCH DIRECTORY FOR VARIABLES OR PROGRAM
2B61 **	VARIABLES SEARCH ENTRY POINT FOR ROUTINE
2B65 **	PROGRAM SEARCH ENTRY POINT FOR ROUTINE
2B87-2BA8	ROUTINE: SEARCH FOR AND LOAD IN PROGRAM
2B8A **	AUTOLOAD OPERATION ENTRY POINT FOR ROUTINE
2BA9-2C07	ROUTINE: :C "COPY DISK" COMMAND
2C08-2C31	ROUTINE: "NO DISK SPACE" SCREEN DISPLAY
2C32-2C48	ROUTINE: DECONFIGURE 64K PAGE INTO THREE 16K PAGES
2C49-2C57	ROUTINE: SEARCH DIRECTORY FOR OPEN 64K PAGE
2C58-2C6F	ROUTINE: SEARCH DIRECTORY FOR OPEN 16K PAGE
2C70-2C80	ROUTINE: MOVE NAME FROM INPUT BUFFER TO DIRECTORY ENTRY
2C81-2CA3	ROUTINE: NXLN (NEXT BASIC LINE) HANDLER
2CA4-2CC4	ROUTINE: WRITE PAGE AND DIRECTORY TO DISK
2CC5-2D5B	ROUTINE: :W "WRITE PROGRAM" COMMAND
2CC5-2CE8	"SEARCH FOR SPACE" PORTION OF :W ROUTINE
2CE9-2D1D	"NAME ENTRY" PORTION OF :W ROUTINE
2D1E-2D55	"START LINE ENTRY" PORTION OF :W ROUTINE
2D5C-2D70	ROUTINE: SEARCH OPEN DIRECTORY ENTRY
2D71-2DF4	ROUTINE: ERASE ENTRY- (RECONFIGURE 64K PAGE IF APPLICABLE)
2DF5-2E1E	ROUTINE: "PRINTER NOT AVAILABLE" SCREEN DISPLAY
2E1F-2E3E	ROUTINE: CHECK PRINTER STATUS
2E3F-2E50	ROUTINE: :P "LPRINT DIRECTORY" COMMAND
2E51-2E60	ROUTINE: :L "LLIST BASIC PROGRAM" COMMAND
2E61-2E75	ROUTINE: OUTPUT "ESC" PLUS A REG TO PRINTER
2E76-2E91	ROUTINE: OUTPUT CONTROL CODES TO PRINTER (6 ENTRY POINTS)
2E92-2EA0	ROUTINE: :N "NUMBER DISK" COMMAND
2EA1-2EA2	AERCO DISK DRIVE PARAMETERS STORAGE
2EA3 **	BASIC HOOK RESULT STORAGE
2EA4 **	TEMPORARY STORAGE; DRIVE DESIGNATOR OR USE SEARCH
2EA5-2EA6	DIRECTORY ENTRY POINTER STORAGE
2EA7 **	USE TYPE STORAGE
2EA8-2EA9	NEW NXLN LINE NUMBER STORAGE
2EAA-2EAB	NEW NXLN ADDRESS STORAGE
2EAC-2EAD	OLD NXLN ADDRESS STORAGE
2EAE-2EAF	DATA FOR INPUT PROMPT CHARACTERS "?>"

HEX ADDRESS

USAGE

2EB0 **	KEYBOARD INPUT BUFFER VLI (VARIABLE LENGTH INDICATOR)
2EB1-2ECE	30 CHARACTER KEYBOARD INPUT BUFFER
2ECF-2EDF	ROUTINE: SWITCH DISK DRIVES
2EE0 **	>> BASIC "Z" HOOK ENTRY POINT (DECIMAL ADDRESS 12000) <<
2EE0-2F00	ROUTINE: BASIC "Z" HOOK COMMAND DISPATCHER
2F01-2F7C	BASIC HOOK: SAVE PROGRAM OR VARIABLES AS PER "Z"
2F7D-2FA7	BASIC HOOK: LOAD VARIABLES FILE
2FA8-2FBE	ROUTINE: MOVE A REGISTER CONTENT TO BASIC VARIABLE "Z"
2FBF **	UNUSED
2FC0-2FFE	TABLE: BBDOS COMMANDS; 21 3-BYTE ENTRIES, KEY & POINTER
2FFF **	STORAGE OF VARIABLE "Z" PASSED TO BBDOS BY BASIC

OVERLAYS THAT MAY BE LOADED INTO 26F0-27EF

OVERLAY NUMBER (TRACK,SECTOR)	HEX ADDRESS IN BBDOS OREM	USAGE
0104	5A09	AUTOLOAD AND HOT-ZII SAVE/LOAD
0105	5C09	:M AND :S MOVE COMMANDS
0106	5E09	:J AUTOLOAD SETUP
0107	6009	BASIC Z=4 "NEW" AND LOAD PROGRAM
0108	6209	UNUSED

DISK DIRECTORY LOCATION.....TRACK 3, SECTOR 1 WITH SECTOR 2 AS BACKUP



ACME ELECTRIC ROBOT CO.

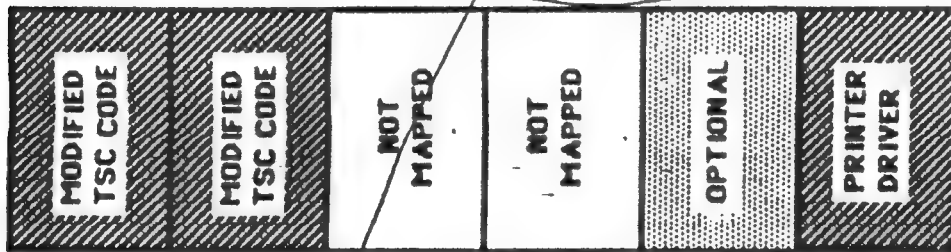
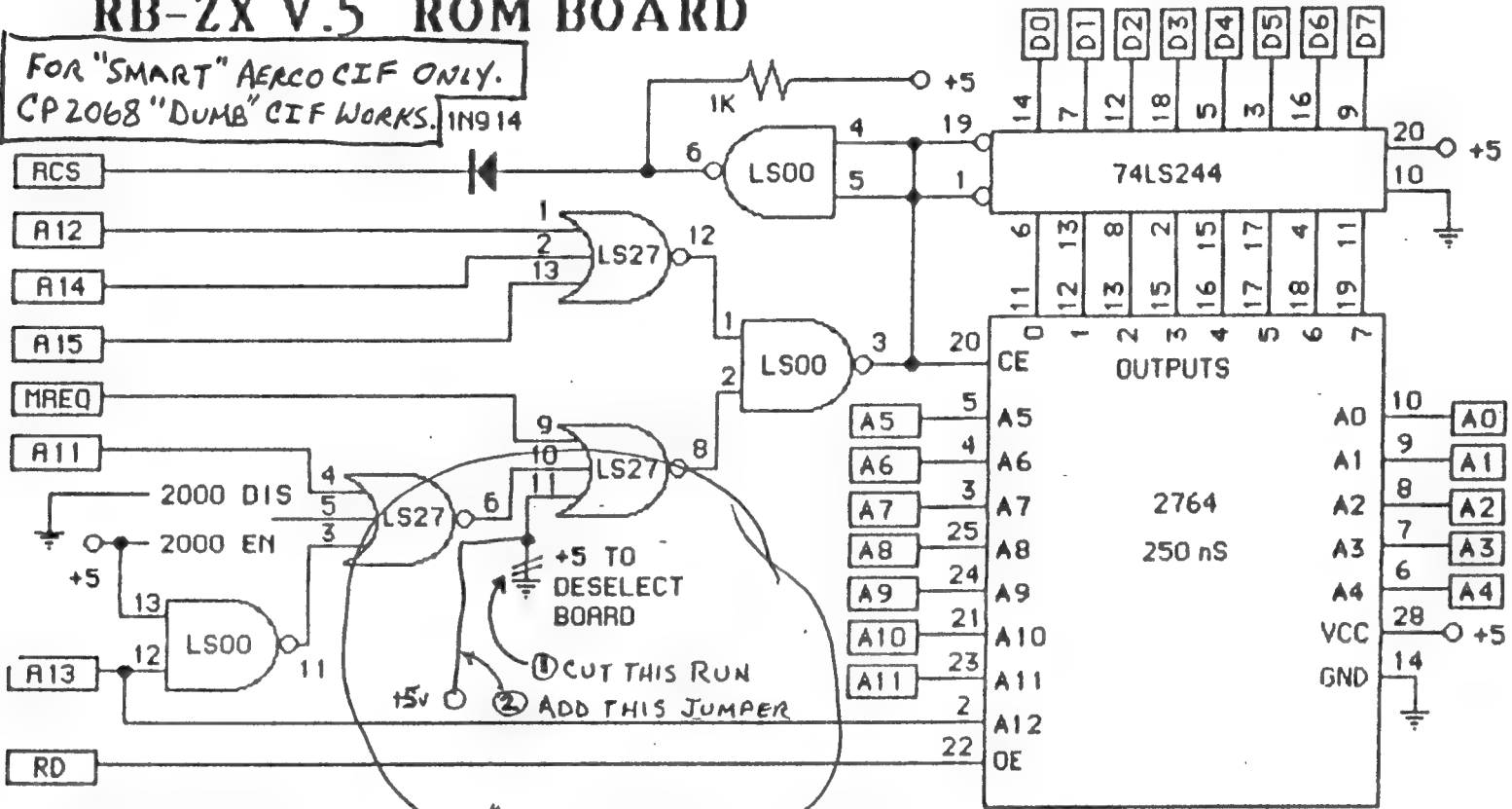
Box 18093 Austin, TX 78760

(512) 451-5874

MODULAR INTERFACE FOR TSC COMPUTERS

RB-ZX V.5 ROM BOARD

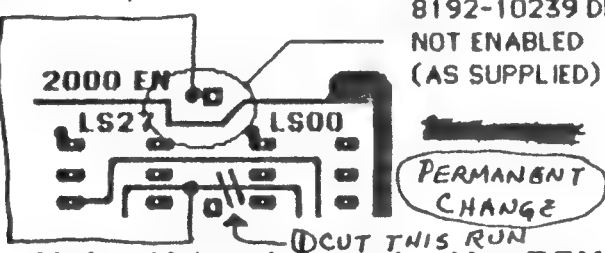
FOR "SMART" AERCO CIF ONLY.
CP2068 "DUMB" CIF WORKS. IN914



This is a map of how the ROM board appears in system memory space. The bottom half of the 2764 EPROM replaces the bottom half of the ROM inside the computer. The top half of the 2764 contains auxiliary routines as shown. See below for selecting the optional region at 2000 HEX (8192 DEC).

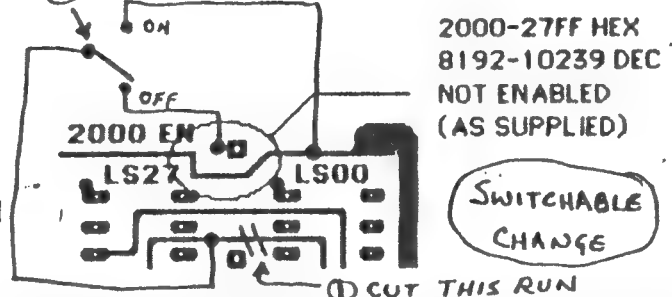
0000	0800	1000	1800	2000	2800	3000	HEX ADDRESS
0	2048	4096	6144	8192	10240	12288	DEC ADDRESS

② ADD THIS JUMPER



2000-27FF HEX
8192-10239 DEC
NOT ENABLED
(AS SUPPLIED)

② OR ADD THIS OPTIONAL SWITCH



2000-27FF HEX
8192-10239 DEC
NOT ENABLED
(AS SUPPLIED)

Make this change to the ROM board to select the optional memory space.

DESELECT THE EPROM FOR RUNNING BBDOs

FRANK & CAROL

IF ALL WORKS & THE ENCLOSED INFORMATION SHOULD GET YOU RUNNING. DIDN'T HAVE TIME TO PUT A +5V SWITCH ON YOUR BOARD BUT SEE THE ENCLOSED DRAWING.

SUE WILL SHIP THE BOX & I'LL LET YOU KNOW SHIPPING COST.

THE DRIVE BOX WILL POWER THE AERCO BOARD VIA THE RIBBON CABLE - JUST PLUG IT IN.

3 WAYS TO POWER THE COMPUTER, MEMORY, ETC.

- 1) REMOVE THE TAPE FROM THE AERCO BOARD AND FEED THE +5V LINE OF THE BUS CABLE FROM THE AERCO BOARD. DO NOT USE ANY OTHER POWER SUPPLY!
- 2) KEEP THE TAPE ON (OR CUT THE JUMPER) AND USE WHATEVER POWER SUPPLY YOU USE WITHOUT THE AERCO PRESENT.
- 3) KEEP THE TAPE ON (OR CUT THE JUMPER) AND FEED THE COMPUTER POWER CONNECTOR (MINIATURE PHONE JACK) FROM THE MINIATURE PHONE JACK CONNECTOR THAT IS BUILT INTO THE DISK POWER SUPPLY CASE. DO NOT USE ANY OTHER POWER SUPPLY.

Bill Bell

Trans 2 (April)

IT has been a while since I have been to the
University. I have been to the University
for a while now.

I have been to the University for a while now.

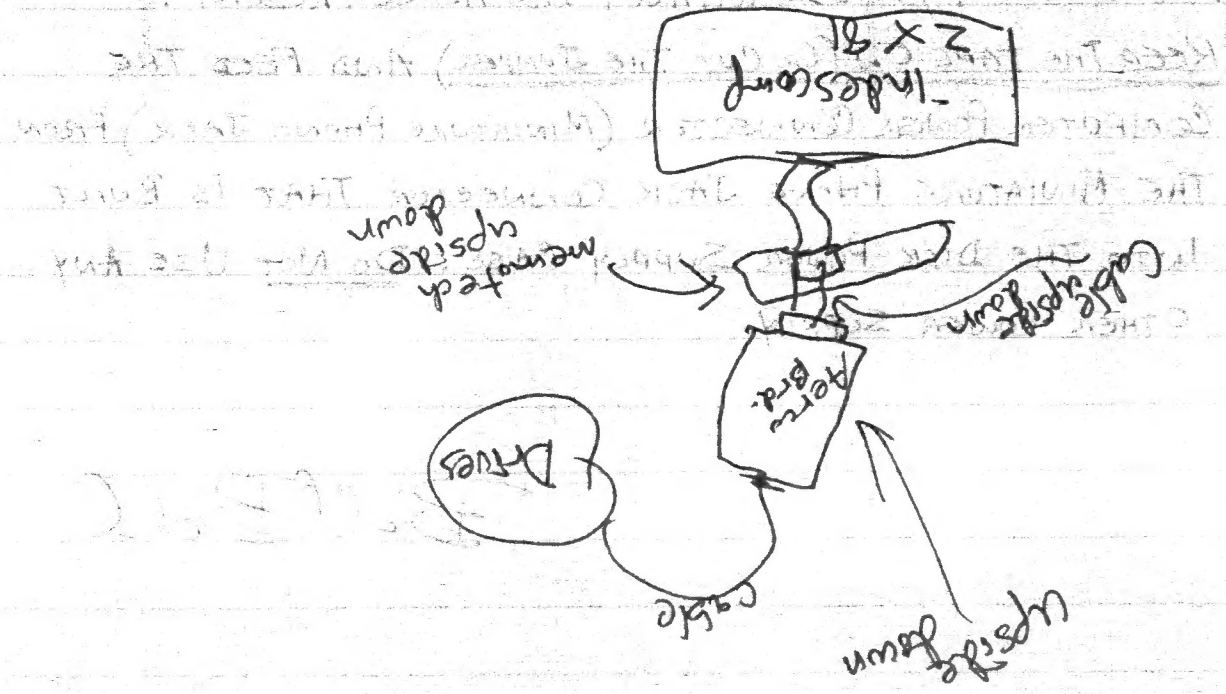
The name box will show the name of the person
who is using the system.

3) How to format the hard drive, etc.

1) Remove the tape from the hard drive and
put it in the tape drive. The tape
drive will format the tape.

2) Keep the tape on (or off the tape) and use the
format supply for use without the use of a
tape drive.

3) Keep the tape on (or off the tape) and use the
format supply for use without the use of a
tape drive.



SWITCH COULD BE
INSTALLED HERE

TO PREVENT "DISK" +5V
FROM GETTING TO COMPUTER
THIS JUMPER CONNECTION MUST
BE BROKEN (BOTH SIDES IF
NECESSARY). TAPE ON PIN
"1B" ACCOMPLISHES SAME THING.

+5V JUMPER

FD1797
CONTROLLER IC

AERCO
EPROM

LOCATION "ES"
74LS245

PIN 2, +5V
FROM DRIVE

NOTCH

TO

FLOPPY
DISK

PIN 34, +12V
FROM DRIVE

COMPONENT SIDE

UNDERSIDE, SINGULAR
PIN "1B" CONNECTS
TO +5V IN COMPUTER.

TO

COMPUTER

NOTE THE CONNECTOR PIN I SOLDERED IN YOUR
BOARD NEAR PIN 1 OF IC "ES". IT IS SIMPLY
A HANDY CONNECTION FOR THE SIGNAL PRODUCED
BY IC "D1" PIN 8, GOING TO IC "ES" PIN 19.
THIS IS A LOW SIGNAL WHENEVER THE AERCO
BOARD IS SELECTED, I.E., 3000₁₆ - 3800₁₆.
YOU CAN IGNORE IT - I USE IT FOR INHIBITING
SELECTION OF OTHER DEVICES DURING DISK USE.

THE ABOVE +5V AND +12V VOLTAGES ARE THE
RESULT OF AERCO'S MODIFICATION TO THE
DRIVE CONNECTORS - REPLACEMENT
DRIVES WOULD HAVE TO BE SIMILARLY
MODIFIED!